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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,651	12/20/2001	Shin Eguchi	2500.66065	1164

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Patrick G. Burns, Esq.
GREER, BURNS & CRAIN, LTD.
Suite 2500
300 South Wacker Dr.
Chicago, IL 60606

EXAMINER

DAVIS, DAVID DONALD

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 08/06/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/027,651

Applicant(s)

EGUCHI ET AL.

Examiner

David D. Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I (claims 1-3 and 10) in the reply filed on May 21, 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on December 20, 2001. It is noted, however, that applicant has not filed a certified copy of the Japanese application as required by 35 U.S.C. 119(b).

Information Disclosure Statement

3. Receipt is acknowledged of the Information Disclosure Statement (IDS) received December 20, 2001.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawato et al (JP 11-175925) in view of Fontana, Jr. et al (US 5,729,410). Kawato et al shows in figure 3 a current-perpendicular-to-the-plane (CPP) or tunnel junction structure (TMJ) magnetoresistive element. The CPP or TMJ includes a lower portion of a magnetoresistive film extending over a surface of a lower electrode layer 21 by a first width in a lateral direction. An upper portion of the magnetoresistive film extends over a surface of the lower portion by a second width smaller than the first width in the lateral direction. Insulators 27 sandwich the upper portion of the magnetoresistive film in the lateral direction. Figure 3 also shows an upper electrode layer contacting the upper portion of the magnetoresistive film. Kawato et al shows in figure 3 the upper portion of the magnetoresistive film includes a free magnetic layer 30.

Kawato et al, however, is silent as to domain control magnetic layers sandwiching the upper portion of the magnetoresistive film. Kawato et al is silent as to the insulator being a magnetic.

Fontana, Jr. et al shows in figure 4a, for example, domain control magnetic layers 150 sandwiching the upper portion of the magnetoresistive film.

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Official Notice is taken of the fact that insulators made of an alloy $\text{Co-}\gamma\text{Fe}_2\text{O}_3$ are notoriously old and well known in the magnetic head art.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide domain control magnetic layers sandwiching the upper portion of the magnetoresistive film of Kawato et al as taught by Fontana, Jr. et al. The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to provide domain control magnetic layers sandwiching the upper portion of the magnetoresistive film so as to bias the sense current in the preferred direction.

It also would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the magnetic head of Kawato et al as modified by Fontana, Jr. et al with an insulator made of an alloy $\text{Co-}\gamma\text{Fe}_2\text{O}_3$ as taught in the art.

The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to provide a magnetic head with an insulator made of an alloy $\text{Co-}\gamma\text{Fe}_2\text{O}_3$ so as to establish a magnetization with a more reliable single domain property.

Response to Arguments

6. Applicant's arguments filed February 2, 2004 have been fully considered but they are not persuasive. Applicant asserts on page 5 the following:

The permanent magnetic films 28 are made of CoCrPt , and are believed by Applicants to exhibit conductivity. As a result, the actual width of the upper part of the free ferromagnetic layer includes not only the film 30, but the conductive films 28, as well.

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The beliefs of applicant are respected. However, even if the beliefs of applicants are in fact true, whether or not films 28 exhibit conductivity is not germane to the claimed invention because it is neither precluded nor set forth in the pending claims.

Applicant also asserts in the first full paragraph on page 6 the following:

Fontana, Jr. et al. fail to disclose or even suggest a narrower path for electric current between the lower portion of the magnetoresistive film and the upper electrode layer in a CPP structure MR element.

It should be noted that the rejection supra, is not base on Fontana Jr. et al, but Kawato et al as modified by Fontana Jr. et al. Nonetheless, even if Fontana Jr. et al did anticipate the claimed invention, the applicant's assertion would not be germane to the claimed invention since it is not set forth in the pending claims.

Conclusion


7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Davis whose telephone number is (703) 308-1503. The examiner can normally be reached on Mon., Tues., Thurs. and Fri. between 7:30-6:00. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900. Any other inquiry should be directed to the customer service center whose telephone number is (703) 306-0377.



David D. Davis
Primary Examiner
Art Unit 2652

ddd
August 4, 2004